

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for recording data in an optical recording medium wherein data are recorded in a write-once type optical recording medium including at least one recording layer disposed on a substrate by projecting a laser beam whose power is modulated in accordance with a pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power and a bottom power onto the at least one recording layer and forming a recording mark in a predetermined region of the at least one recording layer, the method for recording data in an optical recording medium comprising ~~a step of~~:

employing a pulse train pattern having ~~the a~~ smaller number of pulses whose level is set to a level corresponding to a recording power as a linear recording velocity becomes higher and modulating the power of ~~a the~~ laser beam thereby to form a recording mark in the predetermined region of the at least one recording layer,

wherein the number of pulses is set to one (I) in the case where data are to be recorded at ~~the a~~ high linear recording velocity equal to or higher than a first linear recording velocity, ~~and~~

wherein in the case where data are to be recorded at ~~the an~~ intermediate linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, the number of pulses is set to one (I) at least when ~~the a~~ shortest recording mark is to be formed and the number of pulses is set larger as ~~the a~~ length of the a recording mark to be formed becomes longer, and

wherein in the case where data are to be recorded at a low linear recording velocity equal to or lower than the second linear recording velocity, the number of pulses is set such that a difference between the number of pulses and a number corresponding to a length of each recording mark is constant, and such that, for at least one length of a recording mark, the

number of pulses set at the low linear recording velocity is greater than the number of pulses set at the intermediate linear recording velocity.

2-3. (Canceled)

4. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1_a wherein in the case where data are to be recorded at ~~a the intermediate linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity~~, the number of pulses is set to one (1) at least when the shortest recording mark is to be formed_a and the number of pulses is set larger as the linear recording velocity becomes lower.

5. (Canceled)

6. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1_a wherein the first linear recording velocity is ~~determined to be equal to or higher than 10 m/sec.~~

7. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1_a wherein the bottom power is set to a higher level as the linear recording velocity becomes higher.

8. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1_a wherein a ratio of the bottom power to the recording power is set higher as the linear recording velocity becomes higher.

9. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1_a wherein data are recorded in the optical

recording medium by projecting ~~a the~~ laser beam having a wavelength equal to or shorter than 450 nm thereonto.

10. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1₁ wherein data are recorded in the optical recording medium by employing an objective lens and ~~a the~~ laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq 640$ nm, and projecting the laser beam onto the optical recording medium via the objective lens.

11. (Currently Amended) The method ~~for recording data in an optical recording medium in accordance with~~ claim 1₁ wherein the optical recording medium further comprises a light transmission layer, and a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and is constituted so that ~~the~~ at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.

12. (Currently Amended) A method for recording data in an optical recording medium wherein data are recorded in a write-once type optical recording medium including at least one recording layer disposed on a substrate by projecting a laser beam whose power is modulated in accordance with a pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power and a bottom power onto the at least one recording layer and forming a recording mark in a predetermined region of the at least one recording layer, the method for recording data in an optical recording medium comprising: ~~a step of~~

employing a pulse train pattern having a larger number of pulses whose level is set to a level corresponding to ~~a the~~ recording power as a ratio of a track pitch TP of the optical recording medium to a diameter of a spot of the laser beam becomes smaller; and

modulating the power of ~~the~~ laser beam thereby to form a recording mark in the predetermined region of the at least one recording layer.

13. (Currently Amended) An apparatus for recording data in an optical recording medium wherein data are recorded in a write-once type optical recording medium including at least one recording layer disposed on a substrate by projecting a laser beam whose power is modulated in accordance with a pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power and a bottom power onto the at least one recording layer and forming a recording mark in a predetermined region of the at least one recording layer, the apparatus for recording data in an optical recording medium being constituted so as to employ a pulse train pattern having a smaller number of pulses whose level is set to a level corresponding to a recording power as a linear recording velocity becomes higher and modulate the power of a laser beam thereby to form a recording mark in the predetermined region of the at least one recording layer,

wherein a ratio of the bottom power to the recording power is set higher as the linear recording velocity becomes higher,

wherein the number of pulses is set to one (I) in the case where data are to be recorded at ~~the~~ a high linear recording velocity equal to or higher than a first linear recording velocity, ~~and~~

wherein in the case where data are to be recorded at ~~the~~ an intermediate linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, the number of pulses is set to one (I) at least when ~~the~~ a shortest recording mark is to be formed and the number of pulses is set larger as ~~the~~ a length of a recording mark to be formed becomes longer, ~~and~~

wherein in the case where data are to be recorded at a low linear recording velocity equal to or lower than the second linear recording velocity, the number of pulses is set such that a difference between the number of pulses and a number corresponding to a length of each recording mark is constant, and such that, for at least one length of a recording mark, the number of pulses set at the low linear recording velocity is greater than the number of pulses set at the intermediate linear recording velocity.

14-15. (Canceled)

16. (Currently Amended) The apparatus ~~for recording data in an optical recording medium in accordance with~~ claim 13, wherein in the case where data are to be recorded at a the intermediate linear recording velocity ~~lower than the first linear recording velocity and higher than a second linear recording velocity~~, the number of pulses is set to one (1) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the linear recording velocity becomes lower.

17. (Canceled)

18. (Currently Amended) The apparatus ~~for recording data in an optical recording medium in accordance with~~ claim 13, wherein the first linear recording velocity is ~~determined to be equal to or higher than 10 m/sec.~~

19. (Currently Amended) A write-once type optical recording medium comprising a substrate and at least one recording layer disposed on the substrate and being constituted so that data are recorded by projecting a laser beam whose power is modulated in accordance with a pulse train pattern including at least pulses whose levels are set to levels corresponding to a recording power and a bottom power onto the at least one recording layer and forming a recording mark in the at least one recording layer, the optical recording medium being recorded with data for:

setting recording conditions necessary for employing a pulse train pattern having a smaller number of pulses whose level is set to a level corresponding to the a recording power as a linear recording velocity becomes higher;

setting the number of pulses to one (1) in the case where data are to be recorded at the a high linear recording velocity equal to or higher than a first linear recording velocity; ~~and~~

in the case where data are to be recorded at an intermediate linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, setting the number of pulses to one (1) at least when ~~the a~~ shortest recording mark is to be formed, and setting the number of pulses ~~is set larger as the a~~ length of ~~the a~~ recording mark

to be formed becomes longer ~~in the case where data are to be recorded at the linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity;~~ and

in the case where data are to be recorded at a low linear recording velocity equal to or lower than the second linear recording velocity, setting the number of pulses such that a difference between the number of pulses and a number corresponding to a length of each recording mark is constant and such that, for at least one length of a recording mark, the number of pulses set at the low linear recording velocity is greater than the number of pulses set at the intermediate linear recording velocity, thereby modulating the power of a laser beam.

20. (Currently Amended) The write-once type optical recording medium ~~in accordance with~~ claim 19, which further comprises a light transmission layer, and a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and which is constituted so that ~~the~~ at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the first recording layer as a primary component and an element contained in the second recording layer as a primary component.

21. (Currently Amended) The write-once type optical recording medium ~~in accordance with~~ claim 20, wherein the second recording layer is formed so as to be in contact with the first recording layer.

22. (Currently Amended) The write-once type optical recording medium ~~in accordance with~~ claim 20, wherein the light transmission layer is formed so as to have a thickness of 10 nm to 300 nm.